Tetronics International

Explained: Plasmarok®
Generated from Waste Recovery

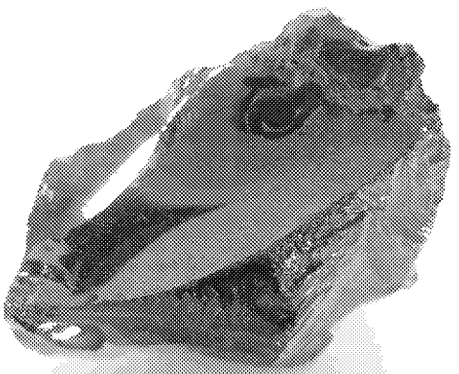
Benefits of Plasmarok® the Product:

Mechanically Strong:
Plasmarok® is basalt like in nature and when cooled slowly produces a material whose hardness and stability may exceed that of granite.

Resistant to Leaching:
The vitreous nature of the Plasmarok® means that any toxins present are strongly bound up within the glassy matrix, making the material more resistant to leaching even than most natural stone products.

No Risk to Humans or Environment:
The recovered Plasmarok® has demonstrated that it does not cause pollution or harm to human health whether it is either stored or used.

Value from Plasmarok®:
Plasmarok® has the ability to generate value as a product in its own right as it can be used in a range of building applications.



Plasmarok® is a strong, environmentally stable product that is recovered from the Tetronics Waste Recovery Process and has the potential to generate value as a building aggregate.

What is Plasmarok®:

Plasmarok® is the fully vitrified, mechanically strong and environmentally stable product that is recovered from the Tetronics waste recovery process. Simply put, it's a material that has been reduced to a stable product by being subjected to extreme heat.

How is Plasmarok® Made:

Plasmarok® is formed in the heart of the plasma converter where the intense heat (around 1500°c) reduces the ash forming part of the feed material to a molten vitreous material resembling volcanic lava. The particular technique employed for treating the molten stream exiting the plasma converter can be adjusted to suit the end-use application for the product. For example, the molten material can be rapidly cooled and granulated in a water bath to form a ~10mm product that would be appropriate for use as a pipe bedding material.

Alternatively, casting the material into blocks and allowing it to cool more slowly produces a high strength product that may be used as a sub-base material for a high load bearing structure.

Why Plasmarok® is Safer Than Alternatives:

Plasmarok® is more suited to a wider range of uses than residues generated in other thermal conversion processes, such as conventional incineration. Incineration can result in bottom ash, which contains leachable levels of heavy metals meaning it is potentially toxic, or fly ash, which contains dioxins or other hazardous constituents and is therefore classed as hazardous waste under the European waste catalogue.

Other technologies generally produce solid residues that contain high levels of char, tars and heavy metals that may also require disposal to hazardous landfill.

Plasmarok® is a dense, mechanically strong and environmentally benign product that may be readily employed in a range of construction applications.

Plasmarok® has gone through comprehensive testing to ensure its safety against BS EN 13242:2002 standards.

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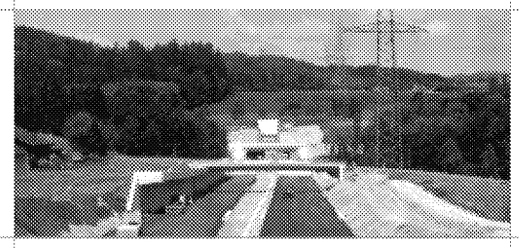

Uses For Plasmarok®:

Plasmarok's® unique combination of high mechanical strength and hardness, as well as extremely high resistance to chemical leaching make it perfect for use as a secondary aggregate material (material that has been used, then recycled and recovered) in road paving, pipe bedding or other markets. In addition, tests have proven that Plasmarok® is less vulnerable to the cracks and weaknesses that may reduce other materials resistance to fracture.

Environment Agency Approved:

The Environment Agency states that Plasmarok® meets the criteria set out in the Waste Framework Directive (WFD) (Directive 2008/98/EC), which acknowledges Plasmarok® as product and not a waste.

To achieve this status Plasmarok® has met the following requirements:

- ✓ **Certainty of use:** Plasmarok® has demonstrated that there is a need and a market for the recovered waste.
- ✓ **Suitability for use:** Plasmarok® has been independently tested and passed BS EN 13242:2002 standards as an unbound aggregate in civil engineering construction projects. For example, in pipe bedding applications and road construction aggregate.
- ✓ **No risk to the environment or human health:** Plasmarok® has undergone independent leachate testing against BS EN 12457 and has demonstrated that there is no potential to cause pollution or harm to human health when it is either stored or used.

About Tetronics:

Tetronics International is the global leader in the supply of Waste Recovery Plants. We have the capability to manage the complete deployment lifecycle of a Waste Recovery Plant from initial testing of the waste material at Tetronics' test facility, the most comprehensive in Europe, through to the physical onsite installation of a full commercial plant, and subsequent support and maintenance.

Tetronics' patented Direct Current (DC) Plasma Arc plant technology provides the closest solution to Zero Waste currently available. This "green" sustainable alternative for waste management uses ultra-high temperatures to melt, gasify or vaporize any waste material, in order to treat, recover or generate useful commercial products.

As a pioneer in using plasma technology for waste treatment, our multi-faceted, highly qualified research and engineering team have applied the technology to an unrivalled range of waste challenges.

Our technology has been tried and tested over five decades and has been used globally in more than 80 plants across a wide and varied range of applications. These applications include, but are not limited to: transforming hazardous waste into environmentally safe building aggregate, recovering precious metals from spent catalysts, recovering energy from waste oil, reducing the volume of radioactive materials and improving the quality and efficiency of steel production.

Our principal aim is to provide sustainable and future proof solutions to support organizations in recovering value from their waste materials while meeting their waste disposal carbon footprint reduction challenges.

Contact Tetronics to find out how Plasmarok® can generate value for you.

Tetronics' experience in the application of plasma technology has resulted in an enviable international reputation, not only for the quality of plasma systems but also for the depth of technical expertise.

Fichtner:
a leading engineering, project management and technical advisor to the waste management, process and renewable energy sectors.

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